

Name: _____

Date: _____

PC: Polynomial Practice

1. If $f(3) = 0$, then _____ is a factor of $f(x)$.
2. If $x + 2$ is a factor of $f(x)$, then _____ is a zero of $f(x)$.
3. If $f(x) = (x - 2)(x + 1)(3x - 1)$, then the zeros of $f(x)$ are: _____
4. If $f(5) = 0$, then a factor of $f(x)$ is: _____
5. If $2x - 3$ is a factor of $f(x)$, then $f(\text{_____}) = 0$
6. Show in 2 ways that $y - 1$ is a factor of $y^3 - 3y^2 + 3y - 1$.
7. Show 2 ways that $x - 2$ is a factor of $x^5 - 32$.
8. Factors of $x^3 + x^2 - 4x - 4$ are $(x - 2)$, $(x + 2)$ and $(x + 1)$. What are the zeros of the polynomial?
9. Given the zeros of $x^3 - 6x^2 + 11x - 6$ are 1, 2, and 3. What are the factors of the polynomial? Check by multiplication.
10. Show that -3 is a zero of $f(x) = x^3 + 7x^2 + 7x - 15$.
11. Given that $(x - 1)$ is a factor of $f(x) = 3x^3 - 4x^2 - 9x + 10$ find all zeros of $f(x)$.
12. One root of $x^3 + 8x^2 + 11x - 20 = 0$ is -5 . Find the complete solution set of this equation.
13. Show that $(x + 1)$ is a factor of $x^3 - 2x^2 + 3 = 0$. Use this information to find the solution set of this equation.

14. One zero of $4x^3 - 11x^2 + 5x + 2$ is $-\frac{1}{4}$. Find the complete **factorization** of this polynomial and find the remaining zeros. **(THE COMPLETE FACTORIZATION OF A POLYNOMIAL WILL INCLUDE FACTORS WITH ONLY INTEGRAL COEFFICIENTS.)**